

33531190R



NLM 05160102 4

NATIONAL LIBRARY OF MEDICINE

ARMY MEDICAL LIBRARY

WASHINGTON

Founded 1836



Section

Number 153361

o p o 3-10543

FORM 113c, W. D., S. G. O.
(Revised June 13, 1936)

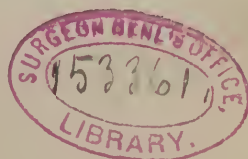
ELECTRO- THERAPEUTICAL PRACTICE.

A READY REFERENCE GUIDE FOR PHYSICIANS IN THE
USE OF ELECTRICITY.

BY

CHAS. S. NEISWANGER, Ph. G.

Author of "Suggestions in Electro-Therapeutics;"
Prof. of Electro-Physics, Post-Graduate Medical School of Chicago.



E. H. COLEGROVE & CO.

CHICAGO:

1895.

WB
495
N416e
1895

Entered according to act of Congress, in the year 1895.
By CHAS. S. NEISWANGER, Ph. G.
in the office of the Librarian of Congress, at Washington.

PREFACE.

In presenting this little volume as an aid to the more rational use of electricity in the medical profession the author is not unmindful of the fact that much literature of a contradictory and confusing nature has been written and published.

In the present work, however, all superfluous verbiage has been discarded; no theories are advanced, no pathology given, and there is no war waged on the various writers and teachers of electro-therapy because of different views and theories held by them, but the aim of the writer has simply been to teach *plain facts* and *simple rules* for the guidance of the great mass of practitioners who, it is supposed, have learned theory and pathology from their text-books, but desire to use electricity in their practice principally as an adjunct to other therapeutic agents; it is not intended to convey the idea that electricity is a specific for the various pathological conditions mentioned in this work.

6354 MARYLAND AVENUE.

Electro-Therapeutical Practice.

Abortion.

Bipolar intra-uterine electrode No. 69 introduced in uterus. Faradic secondary current, medium wire, 500 to 600 interruptions per minute. Seance 5 minutes.

(a) Unipolar method, same current, No. 21 in uterus, No. 66 on abdomen.

(b) Interrupted galvanic used same as above.

—Threatened.

Secondary faradic, fine wire, rapid interruptions, vaginal electrode No. 68 against cervix, No. 3 on lumbo-sacral region.

Abscess, Threatened.

Galvanism. No. 88 covered with wet cotton or chamois leather is attached to the positive pole and applied directly to lesion. No. 3 on negative some distance removed. Daily sittings of ten milliamperes for 10 minutes.

—Mammary, Threatened.

Galvanism. Cut a sheet of block tin after the

design of an ordinary breast plaster, leaving a hole in the center for the nipple; then take some tenacious clay and mix with water until it is of a consistency that can be spread; put a thick coat on the sheet of tin and apply to the breast. Attach to the positive pole and with a large surface electrode on the negative pole some distance removed, allow 15 to 20 milliamperes to pass for 10 minutes.

—**Tuberculous.**

Galvanism. Metallic electrolysis. Take a copper needle of suitable size and insulate it (see Insulation), attach it to the positive pole and thrust it into the abscess. No. 3 on negative pole at some indifferent point. 20 milliamperes for 5 to 8 minutes, then reverse polarity for 2 or 3 minutes to free the needle.

Acne.

Galvanism. Positive pole to lesion. 5 ma. for 10 minutes daily.

Adhesions, Pelvic.

Galvanism. Electrode No. 68 covered with wet cotton attached to positive pole and well up in vaginal vault. No. 66 on abdomen, 25 ma. Tri-weekly seances.

Afterpains.

Secondary faradic current, fine wire coil, rapid interruptions. No. 3 electrode on each pole, one to lumbar region, the other over abdomen. 5 to 10 minutes.

Alopecia. See Baldness.**Amenorrhœa (in young girls).**

Galvanism. Positive pole, No. 3, to lumbar region; negative, No. 3, above the pubes. 20 ma. for 5 minutes three times during week preceding regular period.

- (a) Galvanism, negative in uterus, No. 99. Positive, No. 66, on abdomen. 20 ma., tri-weekly.
- (b) Bipolar intra-uterine faradization.
- (c) General faradization (see Faradization).

Anæsthesia, local.

Galvanism, positive pole.

- (a) Fine wire secondary faradic rapidly interrupted.
- (b) By cataphoresis. Cocaine on positive pole, galvanism.

Aneurisms.

Galvano-puncture; No. 106 with platinum needles is used unipolar* and attached to pos-

*See foot note under "Hypertrophy."

itive pole ; No. 3 on negative ; 30 ma. for 15 to 20 minutes, or until clot is fully formed. Turn off current, reverse polarity and turn current on again for a few moments, or until needles can be removed easily.

Angina Pectoris.

Galvanism. No. 96 (4x6 in.) attached to positive and applied over sternum. No. 3 to negative over lower cervical vertebræ ; increase current gradually to 10 ma. for 2 minutes for first few sittings, afterward prolong sitting to 5 minutes.

Anthrax. See Carbuncle.

Aphasia. See Paralysis.

Apoplexy.

Faradism. Secondary current from medium wire coil. No. 3 on positive to base of brain. No. 1 on negative *labile* over the motor points of the nerves supplying the affected muscles. A mild current from 5 to 15 minutes daily. Do not begin treatment until 2 or 3 weeks after the stroke.

Arthritis.

No. 96 (2x6 in.) AROUND the joint attached to

positive. No 3 on negative ; 20 ma. for 10 minutes daily.

- (a) By cataphoresis. Wet the positive electrode with solution of salts of lithium and apply as above.
- (b) Static induced current for 10 minutes daily.

NOTE.—In gouty arthritis of the fingers the positive electrode should be constructed as follows: Take a glass or porcelain dish and fill nearly full of clay about the consistence of thin mortar, and, by means of a metal strip, or otherwise, connect with the positive rheophore. The affected part of the hand is to be immersed in the clay.

Asphyxia.

Faradism. Current strong enough to produce good contractions—one electrode (No. 1) to phrenic, the other (No. 3) along the insertion of diaphragm into thorax wall. Interrupt current by raising one electrode about 20 or 30 times per minute.

Asthma.

Strong faradic current applied to opposite sides of neck for 15 to 20 minutes.

- (a) Galvanism. No. 1 attached to positive at middle of outer edge of sterno-cleido-mastoid ; No. 3 to negative up and down spine. 10 ma. for 10 to 15 minutes.

Atrophy.

Galvanism. No. 96 (5x7 in.) attached to positive over sternum (or some indifferent point) ; No. 1 to negative *labile* over affected parts. 20 ma. for 10 min. every second day.

- (a) Coarse wire secondary faradic, slow interruptions, same manner as above, 15 minutes daily.

Baldness.

Static breeze to head 15 minutes daily.

- (a) Galvanism. No. 3 on negative to head, positive in hand, 5 to 8 ma. for 10 minutes three times a week.

Bladder, Spasm of.

Faradism. Fine wire secondary, rapid interruptions. No. 21 attached to positive in bladder, No. 66 to negative over symphysis ; 5 minutes every day.

- (a) In young girls, where the above treatment is inadmissible, place one electrode over sacrum instead of in bladder, and proceed as above.

Boils, To Abort.

No. 102 or 33 covered with chamois or cotton is attached to positive pole and applied to lesion, No. 3 on negative ; 20 ma. for 10 minutes daily.

—When Pus has Formed.

Metallic electrolysis. Copper needle attached to positive in abscess ; 25 ma. for 5 minutes. (See also Abscess, Tuberculous.)

Breasts, Female, Development of.

Faradism. Current from coarse wire, secondary coil. No. 0 for active electrode *labile* is always pushed *toward* the nipple (never over it), using considerable pressure on the roller ; No. 1 in each hand on the other pole, using a bifurcated or forked cord. Commence with 5 minute sittings, to be prolonged after 8 or 10 treatments to 15 minutes. On alternate days use galvanism with same electrodes in hands attached to positive pole, No. 3 on negative *labile* to breasts ; 10 to 15 ma. for 5 to 8 minutes.

Bright's Disease.

General faradization. (See Faradization.)

Bunions.

Static spark 10 minutes daily.

- (a) By cataphoresis. No. 33 covered with cotton saturated with solution of cocaine attached to positive pole, No. 3 on negative ; 20 to 25 ma. for 5 to 10 minutes.

Cancer, See Carcinoma.

Carbuncle, To Abort.

Galvanism. No. 102 or 33 covered with cotton or chamois well wetted and attached to positive pole is applied to lesion. No. 3 on negative. 25 ma. for 10 minutes daily. If pus has formed plunge a copper needle attached to positive pole into each nodule or head for 5 minutes, using 20 ma. (See also Abscess, Tuberculous.)

Carcinoma, Breast.

Galvanism. Anæsthetize patient. No. 105 to each pole with from 3 to 10 platinum needles according to extent of growth. The needles are plunged into the base of growth one set on each side and the current turned on rapidly until about 400 ma. are obtained when the current is to be reversed by means of pole changer every 2 or 3 seconds for about 30 times, then remove needles and replace on the other two opposite sides of growth and proceed as before.

—Of Cervix.

Same technique as above but with single needles introduced through an insulating canula.

Catarrh, Nasal.

Metallic electrolysis. No. 65 made of copper and used unipolar attached to positive pole ; No. 3 on negative at some indifferent part. 15 ma. for 5 minutes three times weekly.

—Cervical.

Galvanism. No. 99 in cervix is attached to positive pole ; No. 66 on abdomen to negative. 50 to 100 ma. twice a week.*

N. B. Do not reverse polarity to remove electrode. Use a little traction.

Central Galvanization.

No. 3 attached to both poles. Negative over epigastrium *stabile*. Positive *labile* over forehead, top of head, along inner border of sterno-cleido-mastoid, from mastoid fossa to sternum, at nape of neck and down the entire length of spine. In the former part of treatment, or where the brain is included in the

*These electrodes differ in their active surfaces ; some have two and others four square centimeters. Use 25 ma. for every square centimeter of active surface. The electrodes are marked.

circuit, not more than 5 ma. should be used ; in latter part of the operation the current may be increased to 10 ma. The whole sitting may be a half hour or more.

Chancroids.

Galvanism. Metallic electrolysis. No. 37, or other suitable electrode made of copper is attached to the positive pole and applied to lesion. No. 3 on negative to some indifferent point. The current should be applied long enough and of sufficient strength to deposit the oxychloride of copper deeply into the tissues, which can be ascertained by the green color.

Chilblains.

Galvanism. Metallic electrolysis. Moisten part with salt water and apply No. 14 (made of copper) attached to positive pole. No. 3 on negative. 15 to 25 ma. for 5 minutes every second day.

Chloasma. See Liver Spots.

Chorea.

Galvanism. No. 3 on both poles. Positive to forehead, negative to nape of neck. 3 ma. for 3 minutes. At same sitting with same

electrode, negative on sternum, positive up and down spine. 10 ma. for 5 to 7 minutes three times a week.

- (a). Static head breeze for 15 minutes daily.
- (b). Galvanism. Bifurcated negative with No. 1's in hands. Bifurcated positive with No. 3's, one over each parietal region. 5 ma. for 3 minutes daily.

Cicatrix. See Scars.

Cocaine Anæsthesia. See Anæsthesia.

Comedones.

Electrolysis. No. 107 with fine jeweler's broach is attached to negative; No. 3 to positive. Leave needle in gland about 5 seconds. Use 4 or 5 cells.

Conjunctivitis. See Trachoma.

Constipation.

Faradism. Medium secondary coil, about 600 to 1,000 interruptions per minute. No. 53 on positive in rectum. No. 1 on negative *labile* to abdomen, up the ascending colon down the descending colon. Sitzings 10 to 15 minutes daily.

- (a) Galvanism. No. 53 on negative in rectum. No. 3 *labile* on abdomen. 2 ma. for 10 to 15 minutes daily.

Corns.

Galvanism. Place the foot on No. 52 covered with a wet towel or cotton and attached to the negative pole. No. 33 covered with cotton or chamois attached to positive over corn. 5 ma. for 10 minutes. If very painful wet the cotton on positive electrode with solution of cocaine.

(a). Static spark for 15 minutes daily.

Deafness, labyrinthine.

Galvanism. No. 31 loosely packed with cotton saturated with a weak solution of potassium iodide (the wet cotton protruding from the distal end of electrode). Attach to negative pole. No. 3 on positive to sternum. 5 ma. for 10 minutes three times a week.

—Nervous.

Galvanism. No. 33, covered with cotton or chamois, is attached to positive pole and placed just in front of ear to cover the tragus. No. 3 on negative to sternum. 5 ma. for 10 minutes daily.

Diabetes.

General faradization alternated with central galvanism.

(See Faradization and Central Galvanism.)

Diaphragm, Spasm of. See Spasm.

Diarrhœa, Chronic.

General faradization (see Faradization) combined with frequent applications over abdomen and lumbar regions.

- (a) Galvanism. No. 53, covered with cham-ois, attached to positive pole in rectum. No. 3 on negative over region of ileo-cæcal valve. 10 ma. for 10 minutes every second day.

Dysmenorrhœa, Congestive.

Galvanism. No. 104 with large copper bulb well packed with wet cotton and attached to positive pole is inserted well up in the posterior vaginal vault. Nos. 66 or 96 on negative to abdomen. 20 ma. for 10 minutes every second day.

—— **Membranous.**

Galvanism. No. 99 in uterus, attached to negative pole. No. 66 on positive over abdomen. 50 to 100 ma. every second day for 15 minutes during the week preceding the expected period.

(See foot note under "Catarrh, Cervical".)

—— **Obstructive, due to stenosis.**

Galvanism. No. 21 on negative. No. 66 on

positive to abdomen. 20 to 30 ma. for 5 minutes, or until the active electrode passes through the contraction. Seance every third day, increasing size of olive at each sitting.

—**Virginal.**

Galvanism. No. 96 (4x6) attached to each pole. Positive to lumbar region, negative to hypogastrium. 20 to 30 ma., tri-weekly sittings.

Dyspepsia, Atonic.

Faradism. Fine wire secondary with rapid interruptions. No. 96 (4x6) on positive pole a little to the left of the spinous processes, and at a level with the cardiac end of the stomach, No. 3 on negative *labile* over stomach; 10 minutes daily.

Eczema.

Central galvanization. (See Central Galvanization).

Endometritis.

Galvanism. Metallic electrolysis, No. 101 attached to positive in uterus, No. 66 on abdomen; 25 to 40 ma. for 10 minutes tri-weekly. Reverse current for a few minutes to release electrode.

———**Virginal.** (See **Dysmenorrhœa, Virginal**).

Enuresis.

Faradism. Fine wire secondary with rapid interruptions ; No. 3 on both poles, one to lumbar spine, the other to pubes.

(a) Same as above, with No. 53 in rectum.

(b) Galvanism. No. 53 in rectum attached to negative, No 3 positive over pubes ; 5 to 8 ma. for 10 minutes daily.

Epilepsy.

Galvanism. No. 3 on each pole, positive to forehead, negative to nape of neck ; 3 ma. for 5 minutes daily.

(a) Central galvanism. (See **Central Galvanization**).

(b) Static head breeze for 15 minutes daily.

Epistaxis.

Galvanism. Metallic electrolysis. No. 65 (made of copper) is attached to the positive pole and introduced into the nasal cavity in contact with erectile or varicose tissue that causes the trouble ; No. 3 on negative to sternum or some indifferent point. The intensity of current should average from 16 to 20 milliamperes, and the length of *seance* from 8 to 10 minutes.

Epithelioma.

Electrolysis. Negative attached to No. 92 or 105 with one or more needles, according to size of growth, is inserted into base of tumor on a line with the skin. No. 3 on positive; 5 to 15 ma. until considerable blanching has taken place.

- (a) Interrupted galvanic. Use No. 106. Separate the needles so as to include nearly the whole of tumor when introduced at the base. Use interrupted current of high amperage. (See "Carcinoma").

Eustachian Tube, Stricture of.

Galvanism. No. 77 on negative is introduced into the tube until stricture is engaged. No. 3 in hand. 3 to 5 ma. about 4 minutes or until distal end of electrode has passed the obstruction.

Eye, Atrophy of Optic.

Galvanism. Positive (No. 3) on nucha; negative (No. 1) on frontal protuberance. 5 ma. for 3 minutes daily.

- (a) Galvanism. Positive No. 3 on nucha; negative No. 1 on upper cervical ganglion, 5 ma. 3 minutes.

(b) Galvanism. No. 74 on negative to closed lids; No. 1 on positive to nucha. 5 ma. for 3 minutes daily.

Eye, Trachoma.

Metallic electrolysis. No. 37 (made of copper) attached to positive pole and applied to granular surface. No. 3 negative in hand. 3 to 5 ma. for 5 minutes, or until the membrane has assumed a greenish hue. Use cocaine anæsthesia.

Facial Paralysis. See Paralysis.

——Spasm. See Spasm.

Faradization, General.

No. 52 covered with wet towel *stabile* to feet attached to negative. No. 3 on positive *labile* over whole body.

(a) No. 66 *stabile* over coccyx on negative. No. 3 on positive *labile* over whole body. Sitting to last a half hour or longer.

Fever, Convalescent From

Static electric bath or breeze for 15 to 20 minutes daily.

——Hay.

Galvanism. No. 65 (made of copper) is attached to positive pole and applied to sensi-

tive spots in nasal cavity. Negative (No. 3) in hand or on cheek ; sittings daily commencing with 5 ma., gradually increase the current with each seance until 15 or 20 ma. is reached.

Fibroids. See Tumors.

Fissure, in Ano.

Galvanism. No. 21 on negative applied to whole surface of fissure. No. 3 on positive to thigh. 5 to 8 ma. for 5 minutes. Repeat in a week or ten days if necessary.

—— **In Nipples.**

Galvanism. A small copper wire with smooth point attached to positive pole is applied to the full extent of fissure until it turns an apple green, showing that the oxychloride of copper has been deposited. No. 3 on negative in hand, 5 ma. or about 8 to 10 Leclanche cells.

Fistula.

Galvanism. Insert probe-pointed copper wire to full depth of fistula, attach to positive pole. No. 3 on negative to some indifferent point. 10 ma. for 5 minutes. Reverse current to free electrode.

Freckles.

Galvanism. If very black insert fine steel needle attached to negative pole just under epidermis for 2 or 3 seconds. No. 3 to positive in hand. Use four Leclanche cells.

Furuncle. See Boils.**Galactorrhœa.**

Galvanism. Cut a sheet of block tin after the manner of a breast plaster, leaving a hole in the center for the nipple, and solder onto it a connector for inserting a cord tip. Mix some tenacious clay with water until it is just thick enough to spread. Put a thick coat of this clay upon the block tin, attach to the positive pole of the battery and apply to the breast. No. 66 on negative between the shoulders. 20 ma. for 10 minutes daily.

NOTE.—If the treatments be continued lactation will entirely cease.

(a) Faradism. Fine wire coil rapid interruptions. No. 1 on each pole. Apply current *around* the breasts, not through them. 10 minutes daily.

Gastralgia.

Faradism. Fine wire coil rapid interruptions.

No. 3 on both poles, one over stomach, the other on back.

- (a) Galvanism. No. 3 on both poles. Positive over stomach, negative to back. 20 ma. for 5 minutes.

Gestation, Ectopic.

Faradism. Fine wire coil *slow* interruptions. No. 68 placed against sac per vagina or rectum. No. 66 on abdomen. Five minutes every second day until diminution in size of sac is apparent, then use galvanism, same electrodes, with negative pole to sac. 15 to 20 ma. for 5 minutes every second day.

Gleet.

Galvanism. Copper sound, No. 103, that will easily pass meatus is attached to positive pole and introduced into urethra, often to the full depth. Negative No. 3 or No. 66 to abdomen or thigh. Increase current gradually until 10 ma. is reached. Reverse polarity to free electrode. Five minutes every third day.

Goitre.

Galvanism. Cataphoresis. No. 113 with pad of cotton, lint or blotting paper saturated with strong solution of potassium

iodide attached to *negative* pole. No. 1 on positive to opposite side of growth; 20 ma. for 5 minutes every third day if irritation caused by the current will permit.

- (a) Galvanism. Electrolysis. No. 105, with from 3 to 10 needles according to size of growth, attached to negative and plunged into enlarged gland. No. 96 (6x8) to positive over shoulder blade, 10 to 15 ma. for 5 minutes once in from 5 to 7 days.

—Exophthalmic.

Galvanism. No. 1 on negative to the front side of neck. No. 3 between shoulder blades on positive; 5 ma. for 2 minutes; then move negative electrode to side of neck over sympathetic and give same current for same time; then repeat on opposite side. Seances daily.

Gonorrhœa. See Gleet.

Gout.

Faradism. Fine wire secondary; rapid interruptions applied with suitable electrodes over painful parts.

- (a) Galvanism. No. 96 of suitable size attached to positive over seat of lesion. Large

surface electrode to negative; 20 ma. for 10 minutes daily.

- (b) Galvanism. Cataphoresis. Use current same as above but saturate positive sponge with a solution of the salts of lithium.

Hæmatocele, Pelvic.

Galvano-puncture. No. 58 attached to positive. Make puncture through vagina. No. 66 on negative to back or abdomen; 50 ma. for 5 minutes. Reverse current to free electrode.

- (a) Galvanism. No. 94 applied to mass through vagina on positive pole. Negative No. 66 on back or abdomen so as to include the mass between the two electrodes; 50 ma. gradually increased to 75 ma. for 5 minutes every second day if the irritation caused by the negative electrode will permit.

Hæmorrhage, Cerebral.

Galvanism. Position No. 1 to the side of the lesion. Negative No. 3 to opposite side on neck. 5 ma. for 5 minutes daily.

—Post Partum.

Bipolar Faradism. Medium wire, secondary coil. 2,000 to 3,000 interruptions per minute.

No. 69 in uterus. 10 to 15 minutes, or until bleeding is checked.

(a) Galvanism. No. 99 on positive in uterus. No. 66 on abdomen. 50 to 100 ma. for 5 minutes.

(See footnote under "Catarrh Cervical.")

——Fibroids. See Tumors.

Hæmorrhoids.

Galvanism. Inject tumor, if desirable, with not more than $\frac{1}{16}$ gr. cocaine. Clamp the base of tumor with No. 91 attached to positive pole. No. 92 to negative in tumor. 5 to 10 ma. until tumor is blanched to an ashy hue.

(a) Galvanism. No. 106 attached to *positive* in tumor. No. 66 on abdomen or back. 10 ma. for 5 to 8 minutes.

N. B. In the first process, electrolysis of the contents of tumor is accomplished by the alkaline action of the negative pole, and the products of such decomposition are taken up by the absorbents. In the latter process there is formed a firm clot, due to the coagulating property of the positive pole.

It must be remembered that the needles attached to No. 106 are made of platinum,

and that the electrode can be used either bipolar or unipolar.

Hair, Superfluous.

Galvanism. A fine, steel needle, bulbous pointed (made for this purpose), is fastened into No. 107 and attached to the negative pole. No. 3 on positive, within easy reach of the patient. Use five cells of the Leclanche form or four of the acid type. Introduce needle into follicle, following the direction of hair shaft. Have the patient complete the circuit by laying hand on sponge electrode. The hair should now be grasped with the forceps (No. 72), but *very little* traction used. When the bulb is destroyed the hair will come out *almost by itself*.

Do not use sharp pointed needle. Do not grasp hair with forceps before introducing the needle. Use magnifying glass if sight is not good.

Hay Fever. See Fever.

Hemicrania.

Galvanism. Positive (No. 1) on supraorbital arch, negative (No. 1) on the mastoid; 5 ma. for 5 to 8 minutes.

- (a) Faradism. The "electric hand." The operator holds the positive electrode in left hand while the patient holds the negative. The operator then uses his right hand as an electrode to the affected part. The hair must be moistened. Use long, fine wire, secondary current, with rapid interruptions.
- (b) Static head breeze for 15 to 20 minutes.

Herpes Zoster.

Galvanism. Negative pole over seat of lesion, positive at some indifferent point; 10 ma. for 15 minutes daily.

Hydrocele.

Galvano-puncture. No. 58 on negative pole in scrotum, No. 96 on positive to thigh or abdomen. Increase current gradually to 40 ma. and continue for 5 minutes.

- (a) Draw off the fluid from scrotum, and inject into the sac about one-half the quantity drawn off of a solution of potassium iodide (1 to 20); then introduce No. 58 attached to *positive* pole with No. 96 on thigh, and turn on current until 18 or 20 ma. is reached. Sitting 10 to 12 minutes.

Hyperæsthesia, Skin.

Galvanic baths. An ordinary bath tub may be utilized in the following manner: Attach a metallic strip to an insulated wire, place the strip in bottom of tub, which must be porcelain or porcelain lined, and cover with lattice or strips of wood to prevent contact with the patient. After the latter is placed in the bath one pole of the battery is attached to the insulated wire running to the metallic strip in tub, the other attached to No. 1 is held in patient's hand, which must be *out of the water*. In this trouble the patient must hold the positive pole in the hand, while the negative is attached to the tub.

—Of Stomach.

Faradism. Fine wire secondary with rapid interruption. One electrode (No. 3) to epigastrium, the other to spine for 5 to 10 minutes daily.

Hypertrophy, Inf. Turbinated.

Galvanism. No. 106 (used bipolar) in turbinated. 20 to 30 ma. for 5 minutes. Seance once in seven or eight days.

(a) Galvanism. No. 106 (unipolar)* attached to negative in turbinated. No. 3 to positive in hand. 10 ma. for 5 minutes once a week. The use of cocaine is nearly always desirable.

Hypochondriasis.

Static breeze for 15 to 20 minutes daily.

(a) Galvanization of the spine. 10 ma. for 10 minutes daily.

Hysteria.

Static head breeze for 15 minutes followed by "static induced" for 10 minutes with roller electrode up and down spine.

(a) Static head breeze for 15 minutes followed by general faradization for 15 minutes (See Faradization.)

Hystero-Epilepsy.

Faradism. Coarse wire coil, fifty to sixty interruptions per minute. No. 52 covered with wet towel to feet; a long sponge or spongopilin covered electrode, 2 x 24 to spine. Seance 10 minutes every second day.

(a) Static head breeze for 15 minutes daily.

*This electrode is made unipolar by winding a few turns of bare wire around the metal connecting posts on proximal end.

Inertia, Uterine.

Faradism. Medium wire secondary with intermediate interruptions. Use bipolar vaginal electrode No. 86 in vagina. Seance 5 minutes, to be repeated every hour or two.

Infantile Paralysis. See Paralysis.**Insanity.**

Static head breeze followed by "static induced" up and down spine. Seance to last 25 minutes every other day and to be alternated with central galvanization. (See central galvanization.)

Insomnia.

Galvanism. Use a different one of the following methods at each alternate sitting:

Positive, No. 3, to forehead; negative, No. 3, to nape of neck. 2 to 3 ma. for 10 minutes.

Positive, No. 3, on cervical vertebræ; negative to epigastrium. 10 ma. for 15 minutes.

Positive, No. 3, on cervical spine; negative attached to foot bath. 15 ma. for 15 minutes.

(a). Static head breeze for 20 minutes daily. In the evening is best.

Insulation, for Needles, etc.

Take a wide-mouthed bottle and fill it nearly

full of ordinary orange shellac, pour on sufficient alcohol to cover it and let stand until dissolved. It can be thinned if desirable by adding a little more alcohol. Fasten a camel's hair pencil into the stopper after the manner of a mucilage brush. The needles to be insulated are pushed into a soft cork to the required depth and then painted with the shellac varnish down to the free surface of the cork. They can be used after a few hours. Ordinary uninsulated metal electrodes of any kind can be insulated at any part desired, by painting them with this mixture.

Intercostal Neuralgia. See Neuralgia.

Iritis, Pain and Congestion in.

Galvanism. No. 74 to closed lids on positive; No. 3 in hand. 1 ma. for 2 or 3 minutes.

—Adhesions following.

Galvanism. No. 74 to closed lids on negative. No. 3 in hand. 2 ma. for 5 minutes.

Jaundice.

Faradism. No. 52 covered with wet towel to feet attached to negative. No. 3 on positive *labile* to whole surface of body. Sitzings one-half hour every second day.

Lactation, Excessive. See Galactorrhœa.

Lateral Sclerosis.

Galvanic Baths. The regular electric bath tub, such as shown on last page, is the one preferred. The current is turned on with the positive to head, the negative to feet, and as the patient only receives about a fifth of the total current passing, the meter should register 200 ma. The bath should continue 10 or 15 minutes and be given every day for 5 or 6 days; then every other day until 15 baths are taken.

Lead Paralysis. See Paralysis.

Leucorrhœa, Vaginal.

Galvanism. Metallic electrolysis. No. 104 with large copper olive covered with a wad of wet cotton is attached to the positive pole in vagina; No. 66 on abdomen. 25 ma. for 5 minutes every third day.

NOTE.—Electrode No. 68 if made of copper is better adapted to the treatment of this trouble. The metal portion of any electrode is, however, easily plated with copper and answers just as well as the solid metal. For process, see Plating.

Liver, Cirrhosis.

General faradization. See Faradization.

- (a) Interrupted galvanic. Positive No. 3 posteriorly over liver, negative No. 66 to epigastrium. 10 ma. interrupted 100 times per minute.

—**Spots.**

Galvanism. Carbon disc, No. 88, covered with cotton is attached to positive and applied over discoloration; negative in hand. 10 ma. for 5 minutes daily.

NOTE.—It is probable that these spots can be removed much better and quicker by the process termed “ecorchement.”

Locomotor Ataxia.

Galvanism. No. 96, 2x24, positive to spine. No. 66 to sternum. Commence with a current of 5 ma. for 10 minutes, and gradually increase at each sitting until about 20 ma. is reached.

- (a) Galvanic Bath. See “Lateral sclerosis.”
(b) Static direct spark to full extent of spine for 5 minutes, followed by static head breeze for 15 minutes.

Lupus.

Galvanism. Metallic electrolysis. No. 14,

made of thin copper, on *positive* to lesion. No. 96 to sternum, or some indifferent part. 10 to 15 ma. for 5 minutes, or until a thorough application of the oxychloride of copper is made, which can be ascertained by the color.

N. B.—If the seat of lesion is first moistened with salt water the deposition of the salt of copper is very materially hastened.

Mania. See **Insanity.**

Massage.

Faradism. No. 111 bipolar electrode is used over the parts to be influenced. Coarse wire secondary coil with medium interruptions.

- (a) No. 30 attached to the arm of the operator, who then uses his hand as an electrode, the other pole being in contact with patient.

Melancholia.

Galvanism. Positive pole to footbath. Negative, No. 3, to nape of neck and up and down spine. 5 to 8 ma. for 20 minutes every second day.

- (a) Static head breeze for 15 minutes, followed by “static induced” to spine. Sitzings daily.

Meningitis.

Galvanism. No. 3 on positive over parietal

region, No. 3 on negative subaural ; 5 ma. for 5 minutes daily.

(a) Galvanism. No. 96 on negative to sternum, No. 3 on positive *labile* over cervical spine ; 10 ma. for 10 minutes.

(b) Static head breeze for 15 minutes daily.

Menopause.

Faradism. Medium wire secondary. Bipolar method, No. 69 in uterus ; 10 minutes daily.

(a) Galvanism. No. 99 attached to negative in uterus, No. 66 on abdomen ; 20 to 25 ma. for 10 minutes every second or third day.

(b) Static insulation has an equalizing effect on the nervous forces, and is, therefore, of much benefit in the "fullness of the head" symptom which almost always accompanies this trouble.

Menorrhagia.

Galvanism. No. 99, of pure tin, in uterus attached to positive pole, No. 66 on abdomen ; 50 to 100 ma., according to active surface on positive electrode, for 5 to 8 minutes every second day.

(a) Galvanism. Metallic electroiysis. No.

104, with zinc olive, in uterus attached to positive pole, No. 66 on abdomen ; 25 to 40 ma. for 8 minutes tri-weekly.

Metritis.

Galvanism. Cupric electrolysis. No. 103 or 104 in uterus attached to positive, large electrode on abdomen ; 40 ma. for 5 minutes every second day.

(a) Galvanism. No. 99, pure tin, in uterus attached to positive, No. 66 on abdomen ; 50 to 100 ma. every third day.

—Peri and Para.

In the acute inflammatory stage use secondary Faradic current from long, fine wire coil with rapid interruptions. Bipolar method with No. 86 in vagina. Seances 15 to 20 minutes each day until the subacute stage is reached, when the following is to be used :

(a) Galvanism. No. 99 attached to positive in uterus, No. 66 on abdomen. Commence with 30 ma. for 3 minutes twice a week, and gradually increase current strength and time to 75 ma. for 5 minutes.

Miscarriage. See Abortion.

Moles.

Galvanism. Steel needle fastened into No. 107 and attached to the negative pole is introduced into the mole on a line with the skin, not quite through but nearly so. No. 3 on positive within easy reach of patient, who completes the circuit by laying his hand upon it. Use six cells of the Leclanche form or four of the acid variety. Continue application for 5 minutes or until the growth is blanched to an ashy hue. In case the growth is large a holder should be used capable of holding two or three needles. Such a one is shown in Fig. 92 or 106. The needles for this work should always be insulated. (See Insulation.)

Myelitis.

Galvanism. No. 3 over area of lesion. No. 3 on sternum; 10 ma. for 10 minutes, the current to be reversed every half minute.

(a) Galvanism. No. 3 on positive to nape of neck. No. 3 on negative to lumbar spine. Seance 10 minutes with 10 ma., the current to be reversed three times during the sitting.

Nævus. See Moles.

——**Vascular.** See Vascular Tumors.

——**Pigmentary.** See Wine Marks.

Nasal, Spurs of Septum.

Galvanism. Bipolar needle holder No. 106. The needles are thrust into the growth and a current from 10 to 12 cells is used until the blanched appearance indicates that electrolysis is complete.

——**Stricture.**

Galvanism. Attach to the negative pole electrode No. 21 with an olive one or two sizes larger than the caliber of stricture. No. 3 on negative in hand or on sternum; 3 to 10 ma. until the bulb passes through stricture. Repeat operation in from five to seven days, increasing size of olive at each sitting.

Nettle Rash. See Urticaria.

Neuralgia.

Galvanism. Cataphoresis. No. 1 with sponge saturated with chloroform, attached to positive pole, is applied to lesion. No. 3 on negative to some indifferent point. 10 to 12 ma. for 3 to 5 minutes.

N. B. Care should be taken not to apply current too long, as vesication may result.

(a) Galvanism. Positive pole over seat of pain, with negative at some indifferent point. If the neuralgia is not about the head a current of 12 to 15 ma. may be applied for 10 minutes daily.

(b) Faradism. Secondary current from long, fine wire coil, rapid interruptions. Sitzings, 10 to 15 minutes.

——Hysterical.

Static head breeze for 20 minutes daily.

——Trigeminal.

Galvanism. No. 1 on positive over lesion. No. 3 on negative over upper cervical vertebrae. 3 ma. for 5 minutes two or three times daily.

Neurasthenia.

Static head breeze for 20 minutes daily, followed by static induced current for 10 minutes, with one pole to feet, the other (with roller electrode) over parts affected.

——Cerebral.

Galvanism. No. 3 to forehead on positive. No. 3 to nape of neck on negative. 3 ma.

for 3 minutes. Increase to 5 ma. for 5 minutes if tolerance is good. Sitzings daily.

(a) Galvanism. No. 96 (2x24) to spine, attached to positive pole. No. 66 on negative to sternum. 5 ma. for 10 minutes daily.

Obstetrics, Uterine Inertia.

Faradism. Bipolar method. Secondary current from medium wire. No. 86 in vagina. Apply current for 5 minutes every hour.

—Retention of Dead Fœtus.

Faradism. Secondary current from coarse wire coil, used bipolar in uterus with electrode No. 69.

Ocular Paralysis. See Paralysis.

Œsophagus, Paralysis of. See Paralysis.

—Stricture of.

Galvanism. No. 55 is attached to the negative pole, with an olive one or two sizes larger than the caliber of the stricture. No. 3 on positive to sternum or in hands. 10 ma. until bulb passes through stricture. To be repeated in four or five days, increasing size of olive at each sitting.

Optic Nerve, Atrophy of. See Eye.

Orchitis.

Galvanism. A No. 1 electrode attached to each pole is placed one on each side of the mass and the current gradually turned on until 10 ma. is reached. This should be maintained for 2 or 3 minutes, and the current turned off again gradually, when the polarity is to be reversed and the same amount of current gradually turned on as before. The entire sitting should occupy about 10 minutes.

Ovaritis.

Faradism. Secondary current from long, fine wire coil applied with bipolar vaginal electrode No. 86 for 15 to 20 minutes each day until sensitiveness to pressure has been overcome; then use:

- (a) Galvanism. No. 94 in vagina against the ovary on positive pole. No. 66 on negative to abdomen. 20 ma. for 8 to 10 minutes every second day. Gradually increase current with each sitting until 35 to 40 ma. is reached.

Pain, Relief of.

The positive pole of galvanic current.

- (a) Faradic current from long, fine wire secondary coil rapidly interrupted.
- (b) Cataphoresis. Galvanism. Use solution of cocaine on positive pole.

Paralysis.

Galvanism. Positive pole with large electrode *stable* over sternum or some indifferent point. No. 1 on negative *labile* over affected nerves and muscles, with current strength easily borne by the patient.

——Agitans.

Static insulation followed by sparks along the course of spine. 15 to 20 minutes.

- (a). Galvanism. Positive to forehead, negative to nape of neck. 3 to 5 ma. for 5 minutes daily.
- (b). Galvanism. Positive pole with large electrode over sternum. Negative, No. 3, *labile* over spine. 10 ma. for 10 minutes daily.

——Aphasia.

Galvanism. Positive pole over the third frontal convolution; negative on opposite side of neck. 3 to 5 ma. for 5 minutes daily.

- (a). Static head breeze for 15 to 20 minutes daily.

—**Diphtheritic.**

Faradism. Coarse wire secondary coil, medium interruptions. No. 28 applied to pharynx. No. 1 low down on front part of neck. Sitzings 5 to 10 minutes daily.

NOTE.—If electrode No. 28 causes the patient discomfort, such as gagging, etc., use No. 14 instead on tongue.

—**Facial, Cerebral Origin.**

Galvanism. No. 1 on negative over exit of facial nerve just in front of ear. No. 3 on positive to nape of neck. 3 to 5 ma. for 5 minutes daily.

—**Hemiplegia.**

Galvanism. No. 3 on positive to nape of neck. No. 3 on negative over inferior fronto-parietal region. 3 to 5 ma. for 3 minutes; then change the negative to a subaural position, the positive as before. Same time, same current strength. Next use faradism, coarse wire, secondary coil, slow interruptions for 10 minutes over paralyzed muscles.

—**Hysterical.**

Static head breeze for 20 minutes daily followed by static induced current applied with roller over affected parts.

———Infantile.

Faradism. One pole (with bifurcated cord) in hands; the other *labile* over affected parts.

(a) Galvanism. Large surface electrode on positive over diseased focus; negative to spine. 5 to 10 ma. for 10 minutes daily.

(b). Central galvanization (see central galvanization).

———Intestinal.

Galvanism. No. 85 attached to negative in rectum; No. 3 on positive *labile* over abdomen; 3 ma. for 10 minutes every second day.

(a) Faradism. Coarse wire secondary coil, medium interruptions. No. 85 on positive in rectum; No. 3 *labile* on negative over abdomen, lumbar and dorsal regions of the back.

———Lead.

Galvanic baths after the manner given under "Hyperæsthesia." In this trouble the metal strip in tub is connected with positive pole while the patient holds the negative out of the water.

———Ocular Muscles.

Galvanism. No. 74 attached to negative

over closed lids. No. 3 on positive below occiput; 3 to 5 ma. for 5 minutes daily.

(a) Same electrodes in same position with mild faradic current for five minutes.

NOTE.—It is best to alternate these two treatments.

—**Œsophagus.**

Faradism. Coarse wire secondary coil with about 600 interruptions per minute. No. 14 on tongue. No. 3 to upper edge of sternum. Sitzings five minutes daily.

—**Paraplegia.**

Galvanism. See “Locomotor Ataxia.”

(a) Galvanic Baths. See “Lateral Sclerosis.”

—**Peripheral, facial.**

Galvanism. No. 1 on negative over exit of facial nerve just in front of ear, or at the styloid process. No. 3 on positive below occiput; 3 to 5 ma. for 5 minutes daily.

(a) Static induced current with one electrode in hand, the other at the styloid process. Sitzings 5 minutes daily.

Pelvis, Inflammatory Exudates and Adhesions.

Galvanism. No. 94 attached to positive well up in the vaginal vault. No. 66 on negative

to abdomen; 20 to 40 ma. for 5 to 8 minutes every second day until all inflammation and tenderness has disappeared, then reverse the polarity in all subsequent sittings and use No. 68 covered with cotton or chamois on the negative pole; same dosage as before.

Piles. See Hæmorrhoids.

Plating, Copper, for Electrodes.

Put into a suitable glass vessel a saturated solution of copper sulphate and immerse in it a strip of copper long enough to bend over the outer edge of the jar; to this strip, by means of a suitable connector, attach the positive pole of a battery of two or more cells. Connect the electrode to be plated to the negative terminal and immerse in the fluid until sufficiently plated, which will be in about 10 minutes.

NOTE.—This does not make an *elegant* job of plating, but I have found it to answer the purpose when a copper electrode is wanted for immediate use and there is none at hand. The metal to be plated should be first thoroughly cleansed. This is best done by scouring with a solution of potassium cyanide.

Poliomyelitis. See **Myelitis.**

Post-Partum Hæmorrhage. See **Hæmorrhage.**

Pregnancy, Extrauterine. See **Gestation.**

———**Vomiting of**

Faradism. Long, fine wire secondary coil, rapid interruptions. No. 3 on positive over epigastrium; No. 3 on negative to back. Sittings 5 to 10 minutes each morning.

- (a) Galvanism. No. 88, covered with a thin layer of cotton or lint, attached to positive pole is applied above the clavicle, between the two branches of the sterno-mastoid. No. 3 on negative over the epigastrium. 8 to 10 ma. for 15 to 30 minutes.

Prostate Gland, Hypertrophy.

Galvanism. No. 21 electrode with an active point about 1 inch in length is attached to the negative pole and introduced into the prostatic urethra. No. 3 on lumbar spine or No. 85 in rectum is attached to positive pole. 5 ma. for 5 minutes; to be repeated in about 5 days.

- (a) Galvano-cautery. The galvano-cautery sound used in this operation is devised for the purpose, the best one being after the style

invented by Dr. Newman. It is catheter-shaped, the stem being a hard rubber or metal tube terminating in a hollow olive which holds the platinum burner; a fenestrum in the olive permits the application of the burner to the tissues. An accumulator or storage battery is best adapted for this work.

—Granular.

Galvanism. Metallic electrolysis. A suitable copper olive is attached to No. 104 on positive pole and introduced into the prostatic urethra. No. 3 on negative to lumbar region or on abdomen. 10 ma. for 5 to 8 minutes. To be repeated in 4 or 5 days.

Proud Flesh. See Ulcers, Exuberant.

Pruritus.

Faradism. Long, fine wire secondary coil with rapid interruptions. No. 3 in hand; No. 1 over seat of lesion. 5 to 10 minutes daily.

(a) Galvanism. Same electrodes. Positive pole to lesion; negative in hand. 5 ma. for 10 minutes daily.

Rectum, Stricture of.

Galvanism. No. 21 with metal olive one or

two sizes larger than caliber of stricture* is attached to the negative pole and introduced into the rectum against stricture. No. 66 on abdomen or lumbar spine. 10 to 15 ma. until bulb passes through. Repeat operation every 4 days using larger olive at each sitting.

—Ulceration of.

Galvanism. Metallic electrolysis. An insulated stem with a copper or zinc olive is applied attached to the positive pole, the negative being at some indifferent point. 5 ma. for 10 minutes, repeated every third or fourth day.

Rheumatism, Acute Muscular.

Static induced current applied for 15 minutes daily.

—Articular.

Galvanism. Cataphoresis. A suitable flexible, sponge covered electrode, arranged so as to envelop the joint, is saturated with a solution of some of the salts of lithium and attached to the positive pole, the negative (a

*Olive points for this electrode run from No. 10 to 40 French scale.

large electrode) being at some indifferent point. 20 ma. for 10 minutes.

Ringworm.

Galvanism. Metallic electrolysis. Attach to the positive pole a suitable electrode made of copper, No. 14 or 37, and having moistened the spot to be treated with salt water apply the copper electrode directly to the lesion. No. 3, or even a larger electrode is attached to the negative pole and placed at some convenient indifferent point. If the seat of lesion is about the head a very large current cannot be employed, but a smaller current for a longer time will do just as well. On other portions of the body a current of 15 ma. can be tolerated for 5 minutes.

N. B. As the object of the treatment is to deposit the oxychloride of copper deeply into the tissues, the current must be applied long enough and of sufficient strength to give the tissues a greenish appearance.

Salpingitis, Acute.

Faradism. Bipolar electrode No. 86 in vagina. Long, fine wire secondary coil, rapid interruptions. Seance 20 to 25 minutes.

——Subacute.

Galvanism. No. 94 attached to the positive pole well up in the vagina; No. 66 to lumbar region on negative; 20 to 30 ma. for 10 minutes every second day until three treatments are given, then use negative pole in vagina.

——Suppurative.

Galvanism. No. 99 intrauterine attached to negative pole, No. 66 on abdomen; 20 to 50 ma. for 5 to 8 minutes tri-weekly.

Scars.

Galvanism. A fine steel needle is fastened into No. 107 and connected with the negative pole. The needle is introduced just below the superficial layer of skin, and the current continued long enough to separate it from the underlying tissue. The needle should be re-inserted at other points until the whole surface of the scar has been acted upon. Six cells are sufficient for the work.

Sciatica.

Galvanism. No. 96 or No. 66 is attached to the negative pole and placed upon the lumbar spine. No. 3 on positive is used *labile* along

the course of the nerve ; 15 to 20 ma. for 10 minutes daily.

- (a) Static induced current used in same manner as above.

Scirrhus. See Cancer.

Sclerosis. See Lateral Sclerosis.

Shingles. See Herpes Zoster.

Spasm, Facial.

Galvanism. No. 3 on positive is placed about 2 inches above the ear, No. 3 on negative to nape of neck ; 5 ma. for 5 to 8 minutes.

- (a) Galvanism. No 1 on positive is placed just in front of the ear, No. 3 on negative to nape of neck ; same current, same time.

Spasm, Diaphragm.

Galvanism. No. 3 on positive pole to epigastrium. No. 3 on negative to back of neck. 10 ma. for 5 minutes, twice daily.

- (a). Faradism. Long, fine wire, secondary coil, rapid interruptions. No. 17 labile over epigastrium. No. 3 to back of neck. 5 minutes 2 or 3 times daily.

———**Sterno-Cleido-Mastoid.** See Torticollis.

Spermatorrhœa.

Galvanism. No. 21 (with long olive) attached to negative pole in prostatic urethra. No. 66 on positive to small of back. 3 ma. for 5 minutes. The urethral electrode should then be removed and spinal galvanization employed for 5 minutes longer. Positive pole at nape of neck, negative on lumbar region. 20 to 25 ma. Sitzings every second day.

Spinal Meningitis.

Galvanism. No. 3 attached to positive pole to occiput. No. 3 on negative *labile* to full extent of spine. 5 to 8 ma. for 10 minutes daily.

Spleen, Enlarged.

Static sparks drawn from region over spleen.

(a). Static induced current. One electrode over spleen, the other on back directly opposite.

(b). Galvanism. No. 3 on positive over lesion. No. 3 on negative to back. 10 to 15 ma. for 10 minutes daily.

Stenosis, Uterine.

Galvanism. No. 21 with an olive of suitable size is attached to the negative pole and in-

troduced into the uterus. No. 66 on abdomen to positive. A current strength of 20 to 25 ma. will generally carry the olive point through the stenosed canal in about 5 minutes.

Repeat every third day, using larger olive at each sitting.

Sterility. Due to nondevelopment of Uterus.

Faradism. Coarse wire, secondary coil, slow interruptions. No. 69 in uterus, bipolar method. Sitzings daily for 5 to 8 minutes.

NOTE.—If the canal is not patulous enough to admit the No. 69, use No. 21 with small olive in uterus and No. 3 on abdomen.

Stricture, Lachrymal Duct.

Galvanism. Take a small olive-pointed probe and insulate it all except about $\frac{1}{8}$ inch at the distal end (see insulating). Fasten it into a "D" connector (see cut) and attach to the negative pole. No. 3 on positive in hands. Introduce the probe into the duct until the stricture is engaged and gradually turn on current until 2 or 3 ma. is reached. The point of probe will pass through stricture in a few moments.

——Nasal. See Nasal.

——Œsophagus. See Œsophagus.

——Rectum. See Rectum.

——Urethral.

Galvanism. Use a Newman's sound, shown on next to last page, about three sizes larger than caliber of stricture. Attach to the negative pole. No. 3 or 66 is attached to positive and placed on the abdomen or back. The stricture is then engaged with the sound and the current gradually turned on until 5 ma. is reached. Use very little or no pressure, the alkaline action of the negative pole will carry the bulb through in about 5 minutes. Before the current is turned off the bulb is drawn back through the stricture. Repeat in 5 to 7 days with an electrode having larger bulb.

——Uterine. See Stenosis.

Subinvolution of Uterus.

Faradism. Coarse wire secondary coil, 500 to 600 interruptions per minute. Bipolar method with No. 69 in uterus. 10 minutes daily.

(a) Galvanism. No. 99 attached to positive

pole in uterus. No. 66 on abdomen. 25 ma. for 5 to 8 minutes every second day.

Syphilis, Chancre. See Chancroids.

Toothache.

Galvanism. A piece of absorbent cotton saturated with a solution of cocaine is inserted into the cavity and the positive pole applied to the medicated cotton by means of No. 39 or other suitable electrode. No. 3 on negative to cheek or in the hands. The current may be gradually increased up to 8-10 ma. if the sensation of the patient will permit, and continued for 5 minutes.

Tonsils, Hypertrophy of.

Galvanism. No. 106 used after the bipolar method is plunged into the tonsil. 15 to 20 ma. for 5 minutes every third day. Cocaine anæsthesia is always desirable in these cases.

(a) Galvanism. No. 106 is attached to the negative pole and plunged into the tonsil. No. 3 in hand or on sternum. 10 ma. for 5 minutes every second day.

Torticollis.

Stimulate the sterno-cleido-mastoid and trapezius on the *opposite* side from the lesion,

using a faradic current from the coarse wire secondary coil with slow interruptions for 10 minutes every second day. On alternate days use galvanism on the affected muscles. Positive pole *labile* over lesion. Negative, large electrode at some different point. 15 to 20 ma. for 5 to 8 minutes.

NOTE.—As this trouble seems to be dependent upon an overactive condition of the spinal accessory nerve, the more rational treatment (and one in which the writer has had some very good results) seems to be to produce sedation of that nerve by the use of the positive pole over its motor point. (See Duchenne's chart). With No. 1 electrode attached to the positive pole covering the motor point and the negative in the hands. A current strength of 15 to 20 ma. could be tolerated for 5 minutes.

Trachoma. See Eye.

Tumors, Benign.

Galvanism. Use No. 105 with from one to ten needles (according to size of growth), *always* attached to the negative pole; use a large surface electrode on positive. Intro-

duce the needles into the base of the tumor on a line with the skin and continue the application until considerable blanching has taken place. In these tumors it is generally only necessary to establish a retrograde metamorphosis. Six to ten cells are sufficient for the work.

———**Malignant.** See Carcinoma.

———**Vascular.** See Vascular Tumors.

Ulcers, Exuberant or Fungous.

Galvanism. Metallic electrolysis. No. 14, 37, or other suitable electrode (made of zinc) is attached to the positive pole and applied directly to the lesion. No. 3 on negative to some indifferent part; 20 to 25 ma. for 5 minutes. To be repeated in about three days if a healthy granulation has not been established. Where not contraindicated, cocaine anæsthesia should be produced locally before operating.

———**Indolent, Phagedenic, Sloughing, Etc.**

Galvanism. Metallic electrolysis. Used in the same manner as above except that a copper electrode is used instead of a zinc one.

Urine, Incontinence of.

Faradism. Medium wire secondary, medium interruptions. No. 21 in urethra up to the prostate. No. 3 above pubes. Mild current for three minutes; to be followed by a three minute treatment with galvanism as follows: No. 3 attached to positive pole is placed at nape of neck; No. 3 on negative above symphysis pubis; current, 15 ma. At the third of these treatments the time may be lengthened to 4 minutes; and at the fifth to 5 minutes.

Urethra (Female, Polypus.)

Galvano-cautery snare.

——Stricture of. See Stricture.

——Urethritis, Granular.

Galvanism. Metallic Electrolysis. No. 104 with copper bulb of suitable thickness and $1\frac{1}{2}$ inches in length is attached to the positive pole and introduced into the urethra. No. 66 on abdomen. 15 ma. for 5 minutes every third day.

Urticaria.

Faradism and galvanism should be used at each sitting, and as the technique is identical

with that used for *pruritus*, the reader is referred to it.

Uterine inertia. See **Obstetrics.**

Uterus, Cancer of. See **Carcinoma.**

———**Displacements of.**

Always reposit the organ as nearly as possible in normal position and use a slowly interrupted secondary faradic current from the coarse wire coil in order to stimulate the muscular fiber of the uterine attachments. This current may be used with No. 99 intra-uterine and No. 3 on abdomen, or No. 68 in vagina well up in the vault and No. 3 on abdomen. Should the organ be bound down with adhesions, due to inflammatory deposits, it will first be necessary to break them up before proceeding with other treatment. See “Adhesions.”

———**Subinvolution.** See **Subinvolution.**

Vaginal Leucorrhœa. See **Leucorrhœa.**

Varicose Veins.

Galvano-puncture. Insulate a platinum needle to within $\frac{1}{8}$ inch of the point (See insulating), fasten into No. 107 and attach

to the positive pole. No. 3 on negative to some indifferent part. 15 ma. for 10 minutes or until clot is formed. See also Aneurisms.

(a) Static sparks for 15 minutes daily.

Vascular Tumors.

Galvanism. Make No. 106 unipolar by winding a few turns of bare wire around its proximal end ; attach to the positive pole and introduce into the growth at its base parallel with the skin. No. 3 on negative at some indifferent point. Current from 6 to 10 cells for 5 minutes. Reverse current for 2 or 3 minutes to free needles.

Verruca. See Warts.

Vomiting, of Pregnancy. See Pregnancy.

Warts.

Galvanism. A No. 1 surgeon's needle being fastened into 107 and attached to the negative pole is introduced into the growth at its base on a line with the skin. No. 3 on positive is applied near the seat of operation. A current from 4 to 6 cells for 5 minutes is generally sufficient for a wart of ordinary size. This class of tumor is very easily removed,

as the vitality is very low and it is only necessary to establish a retrograde metamorphosis.

—Venereal (Thread Warts).

Galvano cautery snare.

Wine Marks.

Galvanism. No. 108 is attached to the negative pole and pushed through the skin deep enough to reach the congested mass of capillaries ; No. 3 on positive near the seat of operation or in hand. Current from 6 to 8 cells long enough to cause considerable blanching around the electrode.

- (a) A fine jewelers' broach fastened into No. 107 and attached to the negative pole is introduced just under the epidermis and parallel with the skin to its full depth ; a current from 5 cells is gradually turned on for a few moments, when there will be considerable blanching on either side of the needle, which can now be withdrawn and inserted in another place.

It may not be out of place here to state that the writer has had better success in re-

moving small pigmentary marks by using a plaster composed of :

Antimony tartrate.....one part.

Soap plaster.....three parts.

Green soap.....one part.

Melt the soap plaster, add the other ingredients, and stir constantly until cool. Spread thickly, (about 1-12 inch), a plaster the size of the mark and apply. After 3 or 4 days active suppuration will have commenced, when the plaster can be removed and the sore dressed in the usual manner. In most instances the mark is entirely obliterated.

Wounds.

Suppurating or nonhealing wounds are best treated by metallic electrolysis after the manner of indolent ulcers. See Ulcers.

Wry Neck. See Torticollis.

The author had prepared a chart for insertion here, giving the properties, polar effects and general indications for the uses of the various currents, *i. e.*, galvanism, faradism and franklinic or static ; but in lieu thereof has concluded to give a synopsis of an article written

by Dr. W. J. Morton, and presented at the last meeting of the medical society of the State of New York, which appears to be peculiarly suited to the character of this work, and as it coincides with the author's views the synopsis is given without comment :

Of the Galvanic Current it may be concluded:

- (a) That strong currents depress nutrition of tissues and produce structural changes leading to physiological atrophy (20 to 100 ma).
- (b) That mild currents stimulate nutrition and produce physiological hypertrophy (1 to 8 ma).
- (c) That mild galvanic currents, pulsating or alternating, produce similar effects to mild continuous currents.
- (d) That the negative pole is specifically indicated in that large class of cases termed chronic inflammation where newly formed fibrous tissue or exudate occurs.
- (e) That upon the writer's theory—already accepted by several prominent physiologists—and observations, that catabolic or destructive events in tissue uniformly present the sign of negativity; that is to say, are, at their

origin, electro-positive, (resembling the zinc of a voltaic cell), the negative pole is indicated to arrest the catabolism, the positive to augment it.

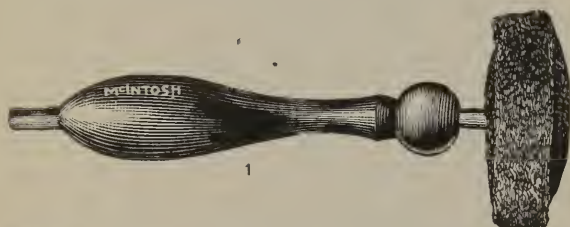
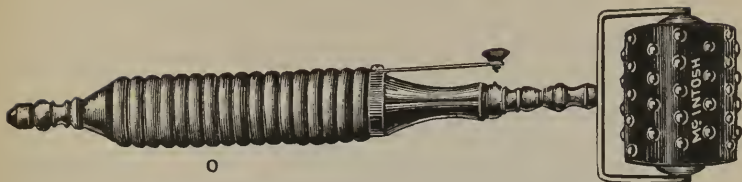
- (*f*) That the positive pole is rarely indicated, and, if so at all, upon the basis of an electrotonic effect to produce sedation of neuralgic pain in superficial nerves.

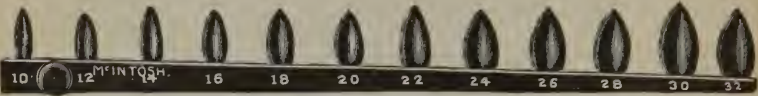
Of the Faradic Current it may be concluded:

- (*a*) That its main uses are to tetanize muscle and to cause sedation of pain.
- (*b*) That the tetanizing current, as now employed to treat paralyzed muscles, is injurious, since it enfeebles the muscle and causes atrophic structural changes.
- (*c*) That to strengthen or properly exercise a paralyzed muscle, a slow rhythm of the faradic current—about thirty waves to the second—should be adopted.
- (*d*) That in some spastic conditions of muscles (due to paralysis of an opposing group) the strong tetanizing current may be used to advantage to overstimulate, and thus to fatigue the muscle.

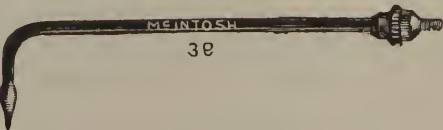
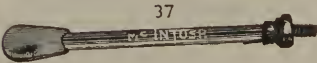
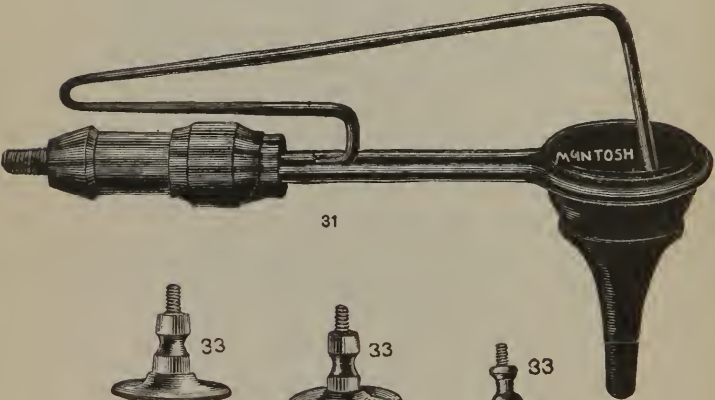
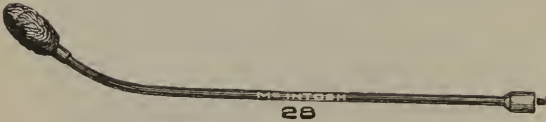
Of the Franklinic Current, or Static Electricity, it may be concluded that it is an adjuvant of great efficiency in practice, since

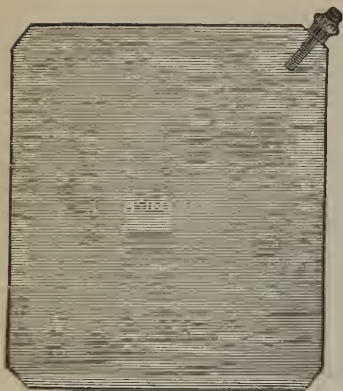
- (a) It evokes the usual nerve and muscle reactions.
- (b) It affords a most convenient means of stimulating the peripheral distribution of the nerves in the skin, producing counterirritating, reflex, and other afferent impression effects.
- (c) It has a local perturbatory action (spark).
- (d) It produces profound alterations in the metabolism of the individual, increasing the natural waste products and diminishing the toxic or by-products. For this reason it is specifically indicated in cases of malnutrition, whether local or general.





21 OLIVES.

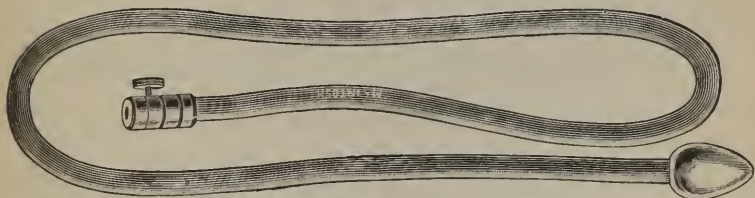




52



53



55



58



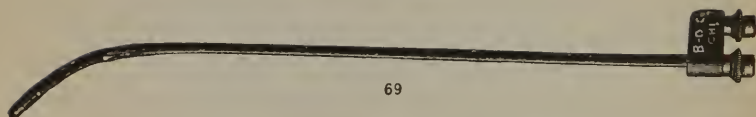
65



66



68



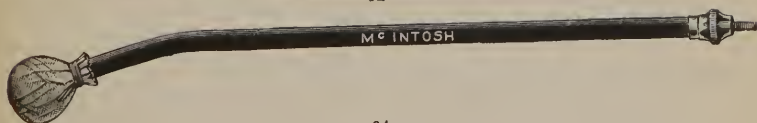
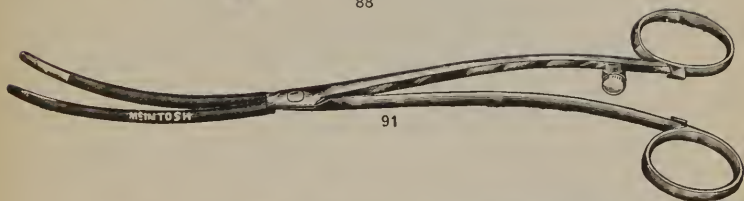
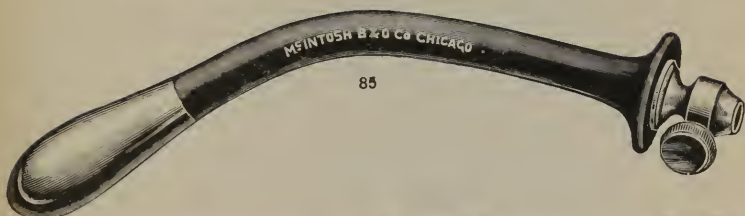
69

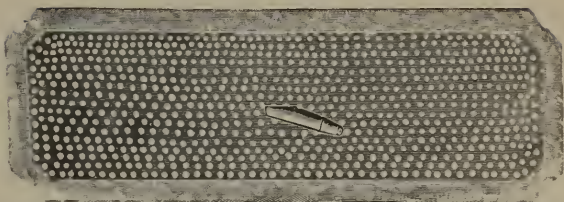


72

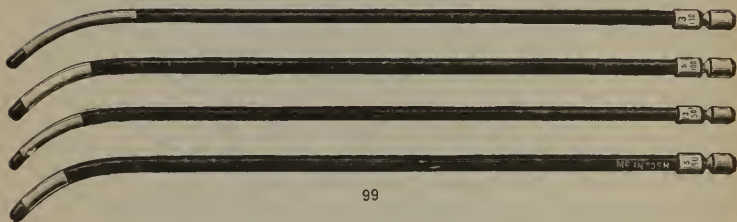


74





96



99



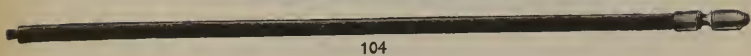
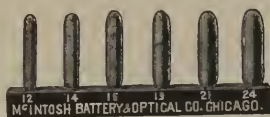
101



102



103



104



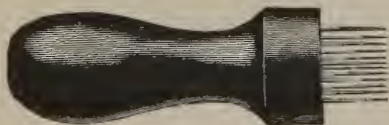
105



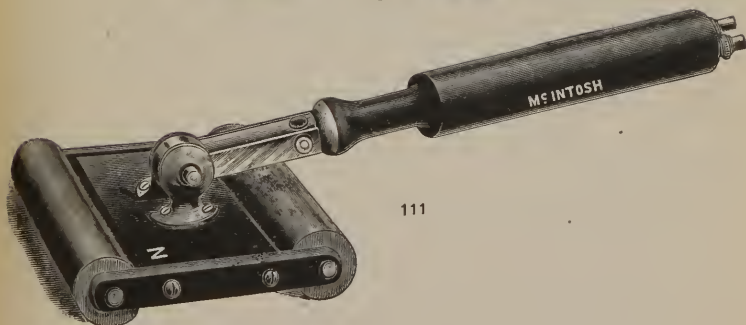
106



107



108



111



113



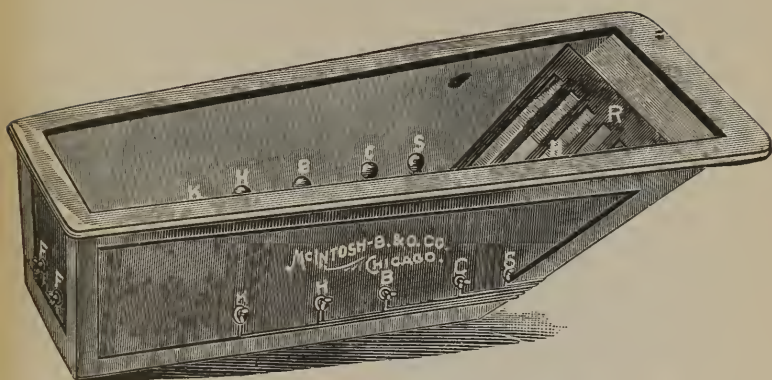
D CONNECTOR.



NEWMAN'S SOUNDS



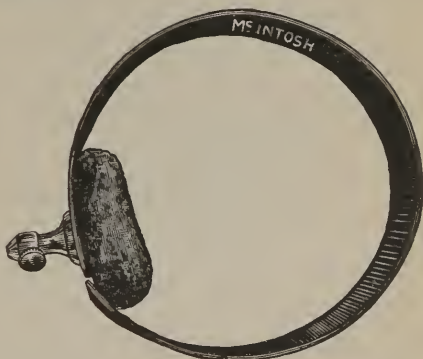
EXPLORING NEEDLE.



BATH TUB.



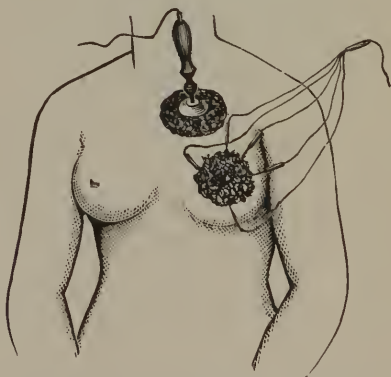
30 ARM.



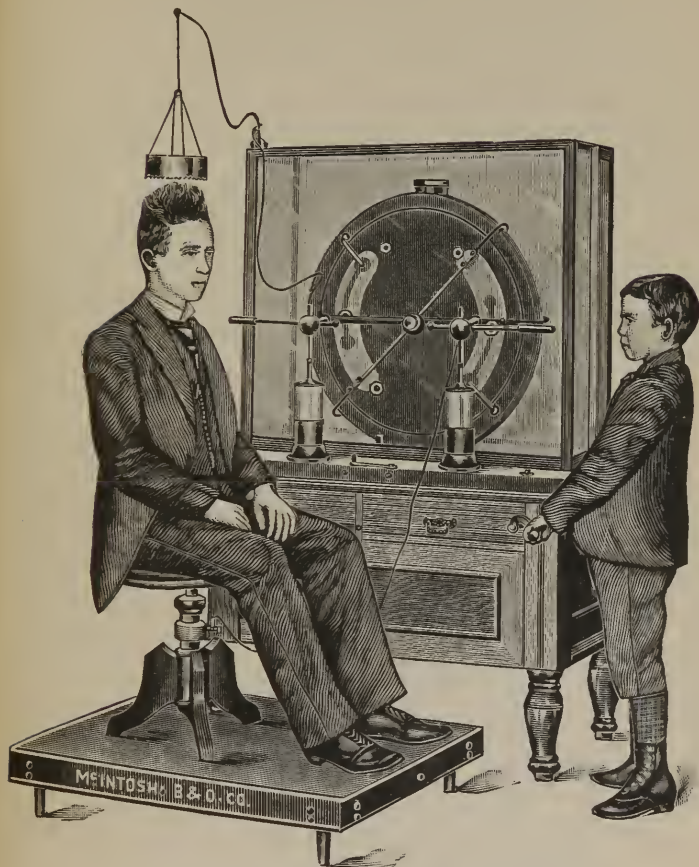
30 NECK.



Showing method of removing foreign body from the eye with electro-magnet.



Method of operating on large tumors where more than one needle is used.

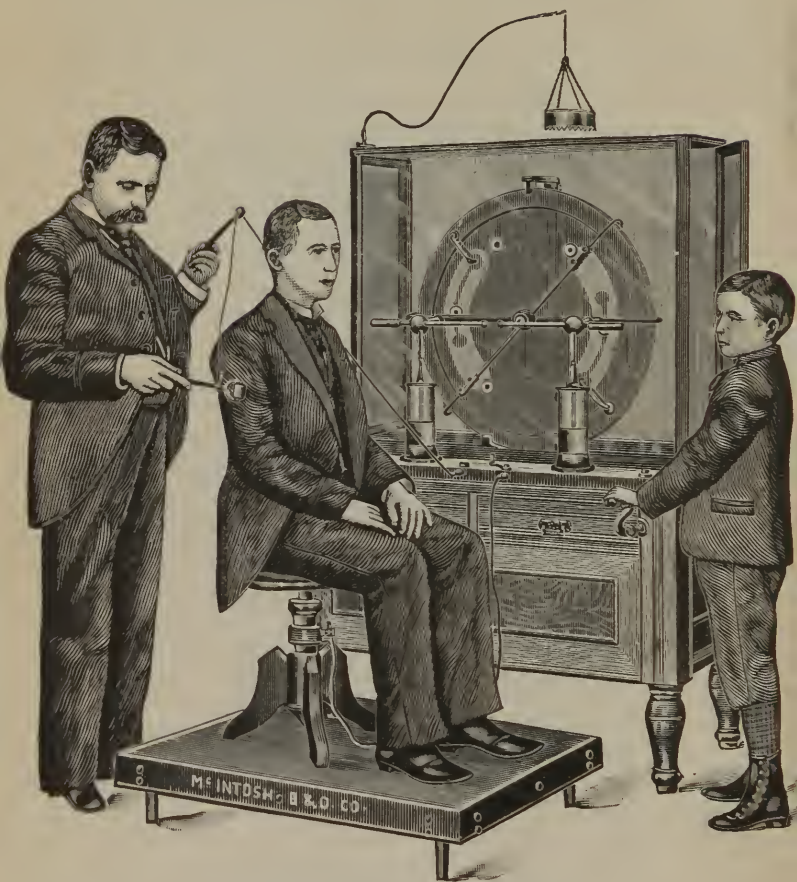


THE STATIC BATH OR HEAD BREEZE.

STATIC INSULATION.—Place the patient on an insulated stool, close the switch, draw out the discharge rods 6 or 8 inches, connect the patient with either the negative or positive poles of the machine with a conducting cord.

Indirect Spark.—While the patient is in the above position; with the hand or an electrode, sparks can be drawn from the patient. (Connect electrode with a cord and let cord connect with the floor.)

The Direct Spark—Close the switch, separate the discharge rods 6 to 8 inches, connect one pole with a cord and electrode, apply to the patient, *using care* that the cord or patient does not connect with the other pole or the one which has no cord connection.

**STATIC INDUCED CURRENT.**

Open the switch, separate the discharge rods one-sixteenth of an inch, or a little less, connect the poles on either side of the switch with two conducting cords and electrodes, hold one in each hand, or apply to any part of the body; to increase the strength of the current separate the discharge rods slightly. Sensation like a current from a Faradic Battery.

WB 495 N416e 1895

33531190R



NLM 05160102 4

NATIONAL LIBRARY OF MEDICINE